

The listing of claims will replace all prior versions, and listings, of claims in the application:

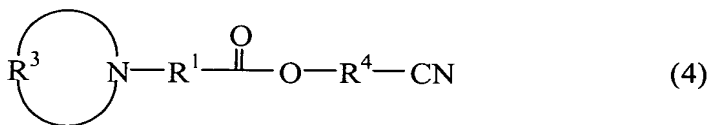
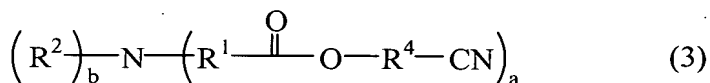
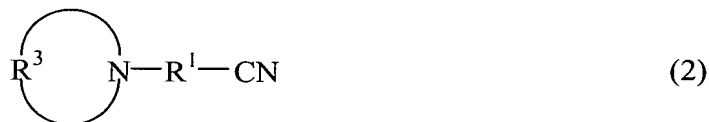
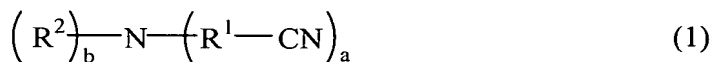
Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) ~~The A~~ resist composition ~~of claim 3~~ comprising as the a basic compound having a cyano group, said basic compound selected from at least one of amine compounds of ~~the following general~~ formulae (1), (2), (3) and (4):



wherein R¹ is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

R² is independently hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which may contain a hydroxy group, ether group, carbonyl group, ester group, lactone ring, carbonate or cyano group,

R³ is a straight or branched alkylene group of 2 to 20 carbon atoms which may contain a hydroxy group, ether group, thioether group, carbonyl group, ester group, thioester group or

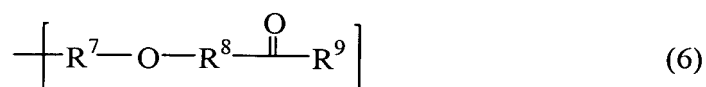
carbonate,

R^4 is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

"a" is an integer of 1 to 3, and

$a+b = 3$.

5. (Original) The resist composition of claim 4 wherein R^2 in formulae (1) and (3) has the following general formula (5), (6), (7) or (8):



wherein R^5 , R^7 and R^{10} each are a straight or branched alkylene group of 1 to 4 carbon atoms,

R^6 and R^9 each are hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which may contain a hydroxy group, ether group, ester group, lactone ring or cyano group,

R^5 and R^6 , taken together, may form a ring with the oxygen atom,

R^8 is a single bond or a straight or branched alkylene group of 1 to 4 carbon atoms,

R^{11} is a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which may contain a hydroxy group, ether group, ester group or lactone ring,

R^{12} is a (n+1)-valent straight or branched organic group of 1 to 4 carbon atoms,

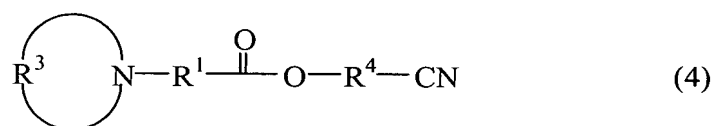
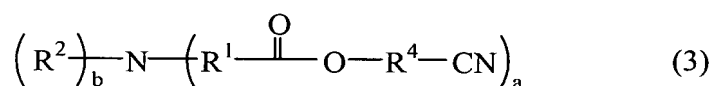
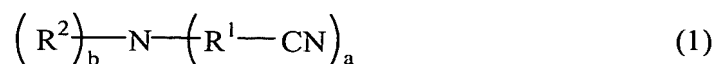
R^{13} is independently a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms which may contain an ether group, ester group, hydroxy group, lactone ring, cyano group or carbonyl group,

R^{12} and R^{13} or two R^{13} groups, taken together, may form a ring with the oxygen atom or the oxygen atom and a carbon atom in R^{12} , and

n is equal to 2, 3 or 4.

6. (Currently Amended) A positive resist composition comprising

(A) ~~the amine compound of claim 1~~ an amine compound selected from compounds of formulae (1), (2), (3) and (4):



wherein R¹ is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

R² is independently hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which may contain a hydroxy group, ether group, carbonyl group, ester group, lactone ring, carbonate or cyano group,

R³ is a straight or branched alkylene group of 2 to 20 carbon atoms which may contain a hydroxy group, ether group, thioether group, carbonyl group, ester group, thioester group or carbonate,

R⁴ is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

"a" is an integer of 1 to 3, and a+b = 3,

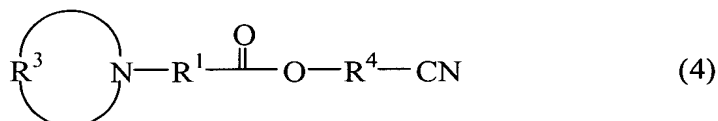
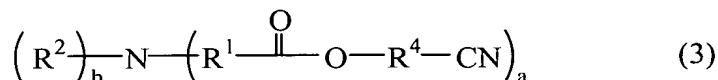
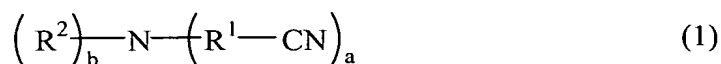
(B) an organic solvent,

(C) a base resin having an acidic functional group protected with an acid labile group, which is normally alkali insoluble or substantially alkali insoluble, but becomes alkali soluble upon elimination of the acid labile group, and

(D) a photoacid generator.

7. (Original) The positive resist composition of claim 6 further comprising (E) a dissolution inhibitor.

8. (Currently Amended) A negative resist composition comprising
(A) ~~the amine compound of claim 1~~ an amine compound selected from compounds of formulae (1), (2), (3) and (4):



wherein R¹ is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

R² is independently hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which may contain a hydroxy group, ether group, carbonyl group, ester group, lactone ring, carbonate or cyano group,

R³ is a straight or branched alkylene group of 2 to 20 carbon atoms which may contain a hydroxy group, ether group, thioether group, carbonyl group, ester group, thioester group or carbonate,

R⁴ is independently a straight or branched alkylene group of 1 to 4 carbon atoms,

"a" is an integer of 1 to 3, and a+b = 3,

(B) an organic solvent,

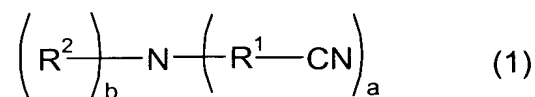
(C) a base resin which is normally alkali soluble, but becomes substantially alkali insoluble when crosslinked with a crosslinker,

(D) a photoacid generator, and

(F) the crosslinker capable of crosslinking under the action of acid.

9. (Original) A process for forming a resist pattern comprising the steps of:
applying the resist composition of claim 6 onto a substrate to form a coating,
heat treating the coating and then exposing it to high-energy radiation having a
wavelength of less than 300 nm or electron beams through a photo mask, and
optionally heat treating the exposed coating and developing it with a developer.

10. (New) An amine compound of the following general formula (1):



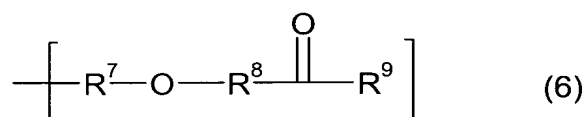
wherein

R^1 is, each independently, a straight or branched alkylene group of 1 to 4 carbon atoms,

a is an integer of 1 or 2,

$a + b$ is 3, and

R^2 is a compound of formula (6)



wherein

R^7 is ethylene,

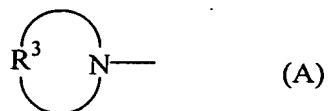
R^8 is methylene, and

R^9 is, each independently, a hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which optionally contains a hydroxy group, ether group, ester group, lactone ring or cyano group.

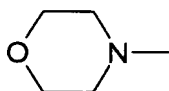
11. (New) An amine compound of the following general formula (2):



wherein moiety (A)



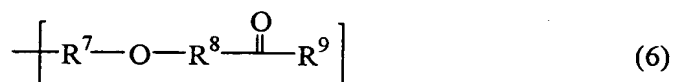
is



and

R^1 is a straight or branched alkylene group of 1 to 4 carbon atoms.

12. (New) A positive resist composition according to claim 6, wherein R^2 in formulae (1) and (3) has the following general formula (5), (6), (7) or (8):



wherein

R^5 , R^7 and R^{10} are, each independently, a straight or branched alkylene group of 1 to 4 carbon atoms; and

R^6 and R^9 are, each independently, hydrogen or a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms which optionally contains a hydroxy group, ether group, ester group,

lactone ring or cyano group; or

R⁵ and R⁶, taken together, optionally forms a ring with the oxygen atom;

R⁸ is a single bond or a straight or branched alkylene group of 1 to 4 carbon atoms;

R¹¹ is a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms that optionally contains a hydroxy group, ether group, ester group or lactone ring;

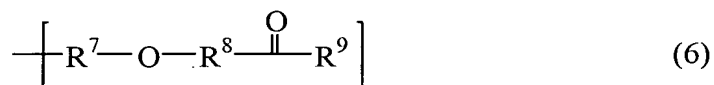
R¹² is a (n+1)-valent straight or branched organic group of 1 to 4 carbon atoms;

R¹³ are, each independently, a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms which optionally contains an ether group, ester group, hydroxy group, lactone ring, cyano group or carbonyl group, or

R¹² and R¹³, taken together, optionally bond with the oxygen atom to form a ring having 2 to 20 carbon atoms, and/or two R¹³ groups, taken together, optionally bond with the oxygen atom or the oxygen atom and a carbon atom in R¹² to form a ring having 1 to 20 carbon atoms, and

n is equal to 2, 3, or 4.

13. (New) A negative resist composition according to claim 8, wherein R² in formulae (1) and (3) has the following general formula (5), (6), (7) or (8):



wherein

R⁵, R⁷ and R¹⁰ are, each independently, a straight or branched alkylene group of 1 to 4 carbon atoms; and

R⁶ and R⁹ are, each independently, hydrogen or a straight, branched or cyclic alkyl group of 1

to 20 carbon atoms which optionally contains a hydroxy group, ether group, ester group, lactone ring or cyano group; or

R^5 and R^6 , taken together, optionally forms a ring with the oxygen atom;

R^8 is a single bond or a straight or branched alkylene group of 1 to 4 carbon atoms;

R^{11} is a straight, branched or cyclic alkyl group of 1 to 20 carbon atoms that optionally contains a hydroxy group, ether group, ester group or lactone ring;

R^{12} is a (n+1)-valent straight or branched organic group of 1 to 4 carbon atoms;

R^{13} are, each independently, a straight, branched or cyclic alkyl group of 1 to 10 carbon atoms which optionally contains an ether group, ester group, hydroxy group, lactone ring, cyano group or carbonyl group, or

R^{12} and R^{13} , taken together, optionally bond with the oxygen atom to form a ring having 2 to 20 carbon atoms, and/or two R^{13} groups, taken together, optionally bond with the oxygen atom or the oxygen atom and a carbon atom in R^{12} to form a ring having 1 to 20 carbon atoms, and

n is equal to 2, 3, or 4.

14. (New) A positive resist composition comprising

(A) a compound of formula (1) of claim 10,

(B) an organic solvent,

(C) a base resin having an acidic functional group protected with an acid labile group, which is normally alkali insoluble or substantially alkali insoluble, but becomes alkali soluble upon elimination of the acid labile group, and

(D) a photoacid generator.

15. (New) A positive resist composition comprising

(A) a compound of formula (2) of claim 11,

(B) an organic solvent,

(C) a base resin having an acidic functional group protected with an acid labile group, which is normally alkali insoluble or substantially alkali insoluble, but becomes alkali soluble upon elimination of the acid labile group, and

(D) a photoacid generator.

16. (New) A negative resist composition comprising

- (A) a compound of formula (1) of claim 10,
- (B) an organic solvent,
- (C) a base resin which is normally alkali soluble, but becomes substantially alkali insoluble when crosslinked with a crosslinker,
- (D) a photoacid generator, and
- (F) the crosslinker capable of crosslinking under the action of acid.

17. (New) A negative resist composition comprising

- (A) a compound of formula (2) of claim 11,
- (B) an organic solvent,
- (C) a base resin which is normally alkali soluble, but becomes substantially alkali insoluble when crosslinked with a crosslinker,
- (D) a photoacid generator, and
- (F) the crosslinker capable of crosslinking under the action of acid.

18. (New) An amine compound according to claim 10, wherein R^9 is H, CH_3 , CH_2CH_3 , $CH_2C(O)OCH_3$, $CH_2OC(O)CH_3$, CH_2OCH_3 , OCH_3 , or $OC(CH_3)_3$.

19. (New) A positive resist composition according to claim 14, wherein R^9 is H, CH_3 , CH_2CH_3 , $CH_2C(O)OCH_3$, $CH_2OC(O)CH_3$, CH_2OCH_3 , OCH_3 , or $OC(CH_3)_3$.

20. (New) A negative resist composition according to claim 16, wherein R^9 is H, CH_3 , CH_2CH_3 , $CH_2C(O)OCH_3$, $CH_2OC(O)CH_3$, CH_2OCH_3 , OCH_3 , or $OC(CH_3)_3$.

21. (New) A resist composition according to claim 4, further comprising

- (B) an organic solvent,
- (C) a base resin, and
- (D) a photoacid generator.

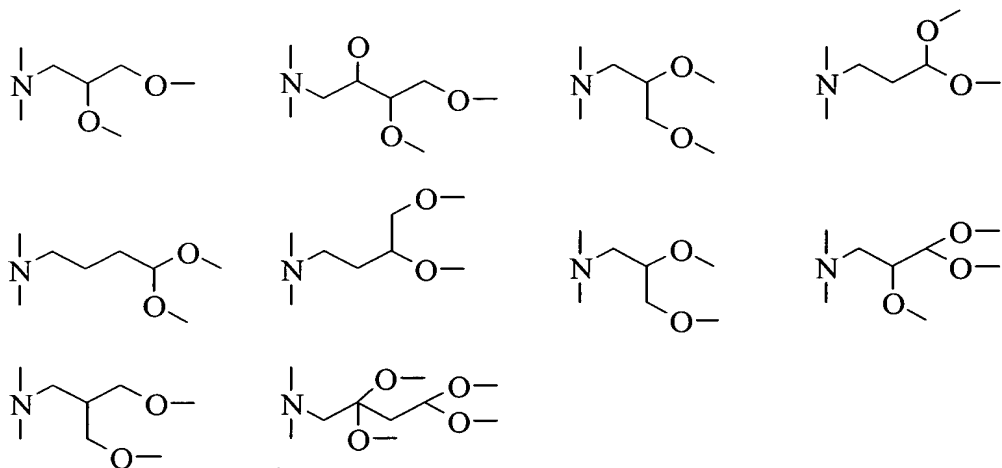
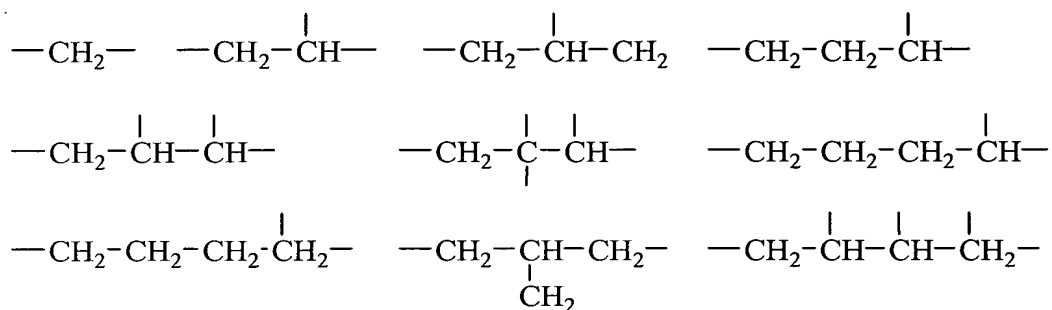
22. (New) A resist composition according to claim 4, further comprising

- (B) an organic solvent,
- (C) a base resin, and
- (D) a photoacid generator.

23. (New) A resist composition according to claim 21, wherein R¹ and R⁴ are methylene, ethylene, propylene, or butylene.

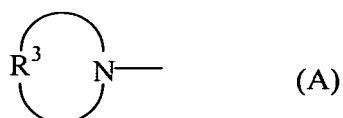
24. (New) A resist composition according to claim 21, wherein R² is hydrogen, methyl, ethyl, propyl, isopropyl, n-butyl, isobutyl, tert-butyl, pentyl, cyclopentyl, hexyl, cyclohexyl, octyl, decyl or dodecyl, which may contain a hydroxy group, ether group, carbonyl group, ester group, lactone ring, carbonate or cyano group.

25. (New) A resist composition according to claim 22, wherein R¹² is selected from

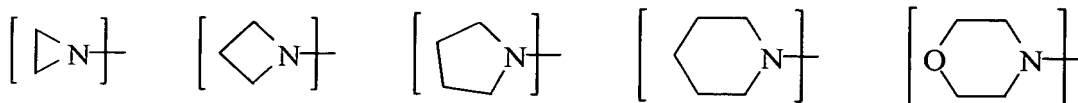


and

26. (New) A resist composition according to claim 21, wherein moiety (A)



is



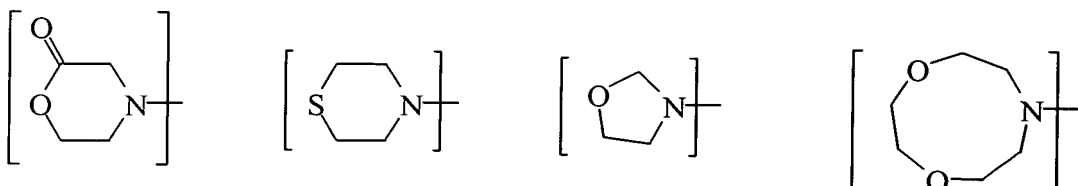
(A)-1

(A)-2

(A)-3

(A)-4

(A)-5

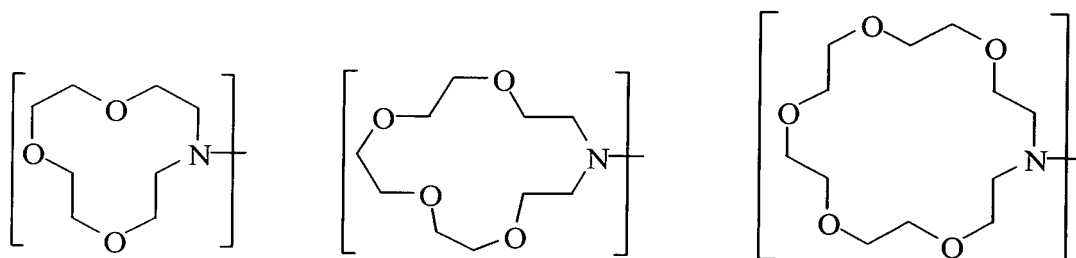


(A)-6

(A)-7

(A)-8

(A)-9



(A)-10

(A)-11

(A)-12

or

27. (New) A resist composition according to claim 21, wherein the basic compound is selected from

(3-diethylamino)propiononitrile,

N,N-bis(2-hydroxyethyl)-3-aminopropiononitrile,

N,N-bis(2-acetoxyethyl)-3-aminopropiononitrile,

N,N-bis(2-formyloxyethyl)-3-aminopropiononitrile,

N,N-bis(2-methoxyethyl)-3-aminopropiononitrile,

N,N-bis[2-(methoxymethoxy)ethyl]-3-aminopropiononitrile,

methyl N-(2-cyanoethyl)-N-(2-methoxyethyl)-3-aminopropionate,

methyl N-(2-cyanoethyl)-N-(2-hydroxyethyl)-3-aminopropionate,

methyl N-(2-acetoxyethyl)-N-(2-cyanoethyl)-3-aminopropionate,
 N-(2-cyanoethyl)-N-ethyl-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-(2-hydroxyethyl)-3-aminopropiononitrile,
 N-(2-acetoxyethyl)-N-(2-cyanoethyl)-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-(2-formyloxyethyl)-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-(2-methoxyethyl)-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-[2-(methoxymethoxy)ethyl]-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-(3-hydroxy-1-propyl)-3-aminopropiononitrile,
 N-(3-acetoxy-1-propyl)-N-(2-cyanoethyl)-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-(3-formyloxy-1-propyl)-3-aminopropiononitrile,
 N-(2-cyanoethyl)-N-tetrahydrofurfuryl-3-aminopropiononitrile,
 N,N-bis(2-cyanoethyl)-3-aminopropiononitrile,
 diethylaminoacetonitrile,
 N,N-bis(2-hydroxyethyl)aminoacetonitrile,
 N,N-bis(2-acetoxyethyl)aminoacetonitrile,
 N,N-bis(2-formyloxyethyl)aminoacetonitrile,
 N,N-bis(2-methoxyethyl)aminoacetonitrile,
 N,N-bis[2-(methoxymethoxy)ethyl]aminoacetonitrile,
 methyl N-cyanomethyl-N-(2-methoxyethyl)-3-aminopropionate,
 methyl N-cyanomethyl-N-(2-hydroxyethyl)-3-aminopropionate,
 methyl N-(2-acetoxyethyl)-N-cyanomethyl-3-aminopropionate,
 methyl N-cyanomethyl-N-(2-formyloxyethyl)aminopropionate,
 N-cyanomethyl-N-(2-hydroxyethyl)aminoacetonitrile,
 N-(2-acetoxyethyl)-N-(cyanomethyl)aminoacetonitrile,
 N-cyanomethyl-N-(2-formyloxyethyl)aminoacetonitrile,
 N-cyanomethyl-N-(2-methoxyethyl)aminoacetonitrile,
 N-cyanomethyl-N-[2-(methoxymethoxy)ethyl]aminoacetonitrile,
 N-(cyanomethyl)-N-(3-hydroxy-1-propyl)aminoacetonitrile,
 N-(3-acetoxy-1-propyl)-N-(cyanomethyl)aminoacetonitrile,
 N-cyanomethyl-N-(3-formyloxy-1-propyl)aminoacetonitrile, and
 N,N-bis(cyanomethyl)aminoacetonitrile.

28. (New) A resist composition according to claim 21, wherein the basic compound is

selected from

1-pyrrolidinepropiononitrile,

1-piperidinepropiononitrile,

4-morpholinepropiononitrile,

1-aziridinepropiononitrile,

1-azetidinepropiononitrile,

1-pyrrolidineacetonitrile,

1-piperidineacetonitrile, and

4-morpholineacetonitrile.

29. (New) A resist composition according to claim 21, wherein the basic compound is selected from

cyanomethyl 3-diethylaminopropionate,

cyanomethyl N,N-bis(2-hydroxyethyl)-3-aminopropionate,

cyanomethyl N,N-bis(2-acetoxyethyl)-3-aminopropionate,

cyanomethyl N,N-bis(2-formyloxyethyl)-3-aminopropionate,

cyanomethyl N,N-bis(2-methoxyethyl)-3-aminopropionate,

cyanomethyl N,N-bis[2-(methoxymethoxy)ethyl]-3-aminopropionate,

2-cyanoethyl 3-diethylaminopropionate,

2-cyanoethyl N,N-bis(2-hydroxyethyl)-3-aminopropionate,

2-cyanoethyl N,N-bis(2-acetoxyethyl)-3-aminopropionate,

2-cyanoethyl N,N-bis(2-formyloxyethyl)-3-aminopropionate,

2-cyanoethyl N,N-bis(2-methoxyethyl)-3-aminopropionate,

2-cyanoethyl N,N-bis[2-(methoxymethoxy)ethyl]-3-aminopropionate,

cyanomethyl N,N-bis(2-cyanoethyl)-3-aminopropionate,

2-cyanoethyl N,N-bis(2-cyanoethyl)-3-aminopropionate,

cyanomethyl N,N-bis(cyanomethyl)-3-aminopropionate, and

2-cyanoethyl N,N-bis(cyanomethyl)-3-aminopropionate.

30. (New) A resist composition according to claim 21, wherein the basic compound is selected from

cyanomethyl 1-pyrrolidinepropionate,

cyanomethyl 1-piperidinepropionate,

cyanomethyl 4-morpholinepropionate,
2-cyanoethyl 1-pyrrolidinepropionate,
2-cyanoethyl 1-piperidinepropionate, and
2-cyanoethyl 4-morpholinepropionate.